

Dosage Feed Device

Claims

1. Dosage feed device (1), in particular for the dosage feed of an additive fluid (2) in crude oil production, with a dosing element (4), which can be adjusted by an adjustment device (3),
characterised in that
the dosing element (4) exhibits a dosing gap (5) and a valve device (7) arranged following it in the fluid flow direction (6) of the additive fluid (2).
2. Dosage feed device according to Claim 1,
characterised in that
an opening area (8) of the dosing gap (5) is variable.
3. Dosage feed device according to one of the previous Claims,
characterised in that
the dosing gap (5) is formed between a dosing cone (9) and counter element (10), whereby the dosing cone (9) and counter element (10) are movable relative to one another.
4. Dosage feed device according to one of the previous Claims,
characterised in that
the dosing cone (9) is formed as the end section (11) of a displaceable sleeve (12), the said end section appearing conical in the direction of fluid flow (6), whereby at least the end section (11) is arranged for displacement in a guide sleeve (13) as the counter element (10).
5. Dosage feed device according to one of the previous Claims,
characterised in that
the dosing gap (5) is formed ring-shaped.
6. Dosage feed device according to one of the previous Claims,
characterised in that

a guide section (14) of the displaceable sleeve (12) is supported for displacement in a support sleeve (15) between an extended position and a withdrawn position (16, 17).

7. Dosage feed device according to one of the previous Claims,
characterised in that
the displaceable sleeve (12) is subject to spring pressure in the direction of the withdrawn position (17).
8. Dosage feed device according to one of the previous Claims,
characterised in that
an especially annular stop (18) protrudes radially outwards from the displaceable sleeve (12) for defining the withdrawn position (17) on the support sleeve (15).
9. Dosage feed device according to one of the previous Claims,
characterised in that
a compression spring (20) is arranged between the support sleeve (15) and a first sleeve end (19) of the displaceable sleeve (12).
10. Dosage feed device according to one of the previous Claims,
characterised in that
a support ring (21) is arranged on the first sleeve end (19).
11. Dosage feed device according to one of the previous Claims,
characterised in that
a valve-seat sleeve (22) is arranged between the valve device (7) and the dosing gap (5) in the flow channel (23), on which a valve element (24) of the valve device (7) contacts on one side in the valve-closed position (25).
12. Dosage feed device according to one of the previous Claims,
characterised in that
the valve device (7) is a non-return valve (26) force-loaded in the direction of the valve-seat sleeve (22).
13. Dosage feed device according to one of the previous Claims,
characterised in that

the essentially spherical valve element (24) contacts an opening edge (27) of the valve-seat sleeve (22), sealed tightly against fluids, in the valve-closed position (25).

14. Dosage feed device according to one of the previous Claims,
characterised in that
a spacer sleeve (28) is arranged between the valve-seat sleeve (22) and the guide sleeve (13).
15. Dosage feed device according to one of the previous Claims,
characterised in that
the valve element (24) is arranged in an essentially cup-shaped element receptacle (29), between which and an inner side (30) of a housing hole (31) at least one fluid opening (51) is formed.
16. Dosage feed device according to one of the previous Claims,
characterised in that
the dosing gap (5) exhibits a certain opening area (8) in a withdrawn position (17) of the displaceable sleeve (12).
17. Dosage feed device according to one of the previous Claims,
characterised in that
an actuating plunger (32) is supported for displacement within the displaceable sleeve (12), spacer sleeve (28) and valve-seat sleeve (22), which is in contact with the valve element (24) at its support end (33).
18. Dosage feed device according to one of the previous Claims,
characterised in that
the actuating plunger (32) is movably connected to the adjustment device (3) with its moving end (34) remote from its support end (33).
19. Dosage feed device according to one of the previous Claims,
characterised in that
the movable end (34) protrudes by a certain delay length (35) out of the first sleeve end (19) of the displaceable sleeve (12).

20. Dosage feed device according to one of the previous Claims,
characterised in that
at least one additive fluid guide (36) opens into an annular space (37) of the flow channel (23) between the guide sleeve (13) and the support sleeve (15).
21. Dosage feed device according to one of the previous Claims,
characterised in that
at least one connecting hole (38) penetrates the support sleeve (15) in the direction of the first sleeve end (19) from the annular space (37).
22. Dosage feed device according to one of the previous Claims,
characterised in that
the adjustment device (3) exhibits at least a spindle drive (39), a reduction gear (40), in particular in the form of a so-called harmonic drive (41), a helically toothed spur gear (42) and a drive motor (43).
23. Dosage feed device according to one of the previous Claims,
characterised in that
the spindle drive (39) exhibits a rotatable, but axially undisplaceable spindle nut (44) and a rotationally rigid, but axially displaceable threaded spindle (45).
24. Dosage feed device according to one of the previous Claims,
characterised in that
a code carrier (46) of a position sensor (47) is in particular assigned to the threaded spindle (45).
25. Dosage feed device according to one of the previous Claims,
characterised in that
a device housing (48) exhibits a number of insertion bevels (49) on the outer side of its housing (52).